

REMARKS

The present remarks are responsive to the Official Action mailed January 26, 2005, the shortened statutory response period expiring on April 26, 2005. Applicants submit herewith a one-month extension petition to reset the deadline for responding to the Official Action to and including May 26, 2005. In view of the following amendments and remarks, reconsideration of the Examiner's rejections and notice of allowance of all pending claims is respectfully requested.

Prior to this amendment, claims 10, 11, and 13-23 were pending in the application. By way of this amendment, Applicants have added claims 24-27. Accordingly, claims 10, 11, and 13-27 are currently pending in this application. No new matter has been added by way of the additional claims or claim amendments.

Applicants initially wish to thank Examiner Kohner for his indication that Applicants' previous amendment was sufficient to overcome the *Ingemarsson* reference and that the previous § 112 rejection is withdrawn in light of Applicants' clarified position.

Notwithstanding, the Examiner has indicated that claim 15 is indefinite under this clarified position. Applicants have amended claim 15 and trust that the amended claim overcomes the new § 112 rejection.

The Examiner has now rejected claims 10, 11, 13-16, and 18-23 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,676,903 issued to Lampenius et al. ("*Lampenius*"). Among other components, the Examiner contends that *Lampenius* discloses an apparatus for separating a fiber suspension comprising a housing, a stator mounted centrally within the housing, and a rotary screen mounted between the housing and the stator thereby dividing the housing into a screen chamber between the housing and the rotary screen and an

accept chamber between the rotary screen and the stator. The Examiner concedes that *Lampenius* does not disclose that the rotary screen is rotatably mounted. Rather the Examiner correctly states that *Lampenius* discloses a stationary screen with an internal rotor rather than a stator, as in the present invention claimed in claims 10, 11, 13-16, and 18-23.

To complete the rejection, the Examiner contends that rotating the screen instead of the rotor is well-known and would be obvious to one of ordinary skill in the art. However, there is a substantial difference between a first device with a rotor and a stationary screen and a second device with a stator and a rotating screen. In devices of the first type, such as the *Lampenius* device, the inlet chamber is located between the rotor and the screen. The fibrous suspension is then pushed along by the pulse barrier member with positive pressure forcing the fibrous material against the screen. The accept portion of the fibrous material filters through the screen toward the outlet. In the case of *Lampenius*, the larger particles forming portions of the reject are then moved relative to the barrier member along the upper plane 3, as shown in FIG. A of *Lampenius*, toward the side plane 4. Once the material reaches the 90 degree bend between the upper plane 3 and the side plane 4, a negative pulse, or zone of low pressure, is created. This zone of low pressure acts to pull material from the screen in an effort to clear the screen of reject material. In this regard, large negative pulses are essential. For example, in column 4, lines 16-20 of *Lampenius*, the specimen states "this feature of side plane 4 being substantially perpendicular to the bottom plane is essential in order to produce pulses which are more effective in keeping the screen from plugging, as compared with rotors which have a curved surface.

In these types of apparatuses, the rotor is in contact with the reject, which is comprised of particles which are

necessarily larger than the accepted particles. Such an apparatus is not capable of use with coarse suspensions, since there is a substantial risk of larger, coarse particles getting stuck and damaging the equipment. For example, large coarse particles may become lodged between the screen and the upper plane 3 of the barrier pulse member. Such devices are therefore limited to fibrous suspensions which are below certain limits of coarseness.

In accordance with the present invention as claim in claims 10, 11, 13-16, and 18-23, the fibrous suspension is screened from the outside of the rotary screen toward the stator. For example, in the present invention as claimed in claims 10, 11, 13-16, and 18-23, the raw fibrous material enters the housing 1 between the screen 5 and the screen housing. The less course portions of the raw fibrous material immediately begin to pass through the screen into the accept chamber 10 between the rotary screen 5 and the stator 8. The remaining operation of the screening apparatus will be discussed with FIG. 3 as an example.

As shown in FIG. 3, as the screen 7 rotates toward a barrier member 12 material in the accept chamber 10 will be forced against the press surface 14. The material will then be pushed through the screen 7 to clear the surface of the screen around its outside perimeter. As the screen continues to rotate 8, a negative pressure along the backside of the barrier element 12 pulls the less coarse material back into the accept chamber 10. This material collides with the next barrier member 12 where it is either forced through the screen 7 again, or diverted to the lower accept chamber 13 out through the accept outlet 5.

One can therefore readily see that devices of the type claimed in the presently rejected claims, claims 10, 11, 13-16, and 18-23, are preferred for separating fibrous suspensions

which are relatively coarse. In this type of device, the coarse materials are always retained between the rotary screen and the housing, and can therefore not become lodged between the rotary screen and the barrier pulse member. In devices such as *Lampenius*, large particles may become lodged between the screen and the rotor - thus having a great potential of damaging the screen as the particles are dragged across its surface.

Pulse surfaces of the type in FIG. 3 of the present invention are designed to achieve a smooth decrease of the space available for the accept portion that might be rotating along with the movement of the screen. In this way, the accept portion eventually has no choice but to move either downward toward the accept outlet or through the screen.

Paragraph [0038] of the specification describes the barrier/pulse element 12 as extending towards the screen 7 to a point where the barrier/pulse element is located very close to the screen surface such that no material may pass.

In the *Lampenius* invention, element 3, the upper plane, is disclosed as being parallel to the rotor. At Column 4, Lines 8-15, the upper plane 3 is also disclosed as being upwards of three inches in length. The first plane 1 may also vary in length up to three inches. Thus, it is clear that the upper plane 3 and the first plane 1 may be substantially in the same length range, creating an extended surface between the screen and rotor blade at upper plane 3. It is in this extended surface that the greatest likelihood of screen damage occurs. For example, when larger particles are lodged between the screen and the upper plane 3, the larger particles may drag across the screen in such a way so as to damage the screen.

In the case of the present invention as shown in FIG. 3, the portion of the barrier/pulse member 12 corresponding to the upper plane 3 is minimized, such that very little of the barrier pulse member is parallel to the screen.

As alluded to above, the pulses required to clear the screen of devices of the type claimed in the presently rejected claims, are pressure pulses. The pulses required in the *Lampenius* disclosure are negative pulses. This is then another essential difference between the two inventions because it permits a barrier element shape, in the case of the present invention as claimed in the rejected claims, which is not maximized to produce the greatest pressure pulse possible. In the *Lampenius* invention, it is disclosed that the negative pulse generated is intended to be the greatest pulse possible, as large pulses are required to clear the screen.

Consumers of the screening apparatus as claimed in claims 10, 11, 13-16, and 18-23 appreciate the screening apparatus for the reduced wear on the screen, in combination with the feature of reduced thickening and self-cleaning of the screen which minimizes the risk of screening apparatus plugging. In order to achieve such results, it is necessary to have a screening apparatus in which the suspension is screened from the outside in, in combination with providing the centrally mounted stator with barrier/pulse elements in accordance with the invention as claimed in claims 10, 11, 13-16, and 18-23. Accordingly, rotating the screen instead of the rotor is not an obvious variant of *Lampenius*, and would not have been obvious to one of ordinary skill in the art, and claims 10, 11, 13-16, and 18-23 are deemed allowable.

Claim 17 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Lampenius* in view of U.S. Patent No. 6,071,378 issued to Saito ("*Saito*"). The Examiner contends that the features of *Lampenius* may be combined with the conical shaped rotary screen of Saito to create the invention of claim 17. Claim 17 depends from claim 10. Although Applicants firmly believe that claim 17 includes additional patentable subject

matter, Applicants note that claim 17 is deemed allowable as pending from claim 10.

The Examiner has also rejected claims 10-11, 13-16, and 18-23 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,147,543 issued to Frejbord ("*Frejborg*"). Applicants note that Frey Frejborg, the sole inventor of *Frejborg*, is a co-inventor on the *Lampenius* reference. Further, the references share many of the same features. Accordingly, the comments above made with respect to the *Lampenius* reference are incorporated herein by reference with respect to the *Frejborg* reference. As the Examiner's rejections appear identical under both references, claims 10-11, 13-16, and 18-23 are deemed allowable by virtue of the comments above. Likewise, claim 17 is deemed allowable in light of the above comments despite the Examiner's rejection under 35 U.S.C. § 103(a) under *Frejborg* in view of *Saito*.

Lastly, Applicants again note that claims 24-27 have been added to the present application. Applicants believe that claims 24-27 are allowable over the art of record, without including new matter. Accordingly, following this amendment claims 10, 11, and 13-27 are presently pending. Each of these claims is deemed allowable.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding claim rejections and to pass this application to issue.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone Applicants' attorney at

Application No.: 09/936,193

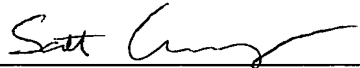
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(908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: May 25, 2005

Respectfully submitted,

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